

## REMARKS

### 1. Introduction

In the Office Action mailed May 18, 2007, the Examiner rejected claims 1-4, 6-8, and 19 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Bolz, U.S. Patent No. 4,067,959 (“Bolz”) in view of Nasir et al., “Detection of *Salmonella enteriditis* Infections in Chickens and Egg Yolks Using Fluorescence Polarization,” *Proceedings of the One Hundred and Fourth Meeting of the United States Animal Health Association*, October 20-27, 2000 (“Nasir”). The Examiner rejected claim 5 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Bolz and Nasir in further view of Gast et al., *Avian Diseases*, 46:137-142, Jan-Mar 2002 (“Gast”).

Claims 1-8 and 19 are currently under examination. Claims 9-13 were previously canceled, and claims 14-18 and 20 have been withdrawn from further consideration as being drawn to a non-elected invention.

For the reasons set forth below, Applicants respectfully request reconsideration and allowance of all claims currently under examination.

### 2. Response to rejections of claims 1-4 and 19

Of these claims, claim 1 is independent. The Examiner has rejected claim 1 under § 103 as being allegedly unpatentable over Bolz in view of Nasir. In response, Applicants respectfully submit that the § 103 rejection is improper because the Bolz/Nasir combination would not have taught the method of claim 1 to one of ordinary skill in the art at the time the invention was made. More particularly, the Bolz/Nasir combination would not have taught one of ordinary skill in the art to use a tracer comprising a fluorophore conjugated to a *Salmonella* **antigen** in order to detect a *Salmonella* **antigen**.

Claim 1 is directed to a method for detecting *Salmonella* antigens in a sample. The Examiner has cited Bolz as teaching a method of detecting antigens in a sample, wherein the method includes the use of fluorescent labels for detection. *See* Office Action, p. 4. However, Bolz's Abstract (cited by the Examiner) teaches that when antigen is to be detected in the sample the fluorophore is attached to the antibody. In contrast, claim 1 recites the use of a fluorescently labeled antigen, namely, "said tracer comprising a fluorophore conjugated to an oligosaccharide from a *Salmonella* cell wall lipopolysaccharide." It is true that Bolz also discloses the use of a fluorescently labeled antigen, but Bolz explains that the fluorescently labeled antigen is used for the detection of sample antibody, not sample antigen. *See* col. 5, line 64 – col. 6, line 3.<sup>1</sup> Thus, Bolz fails to teach the basic approach in claim 1 of using a fluorescently labeled antigen to detect sample antigen.

Nasir fails to make up for this deficiency in Bolz because Nasir teaches the use of fluorescence polarization to detect antibodies to *Salmonella*, not *Salmonella* antigens. Thus, Nasir teaches using a fluorescently labeled *Salmonella* antigen, but in the context of detecting antibodies to *Salmonella*, not *Salmonella* antigens. Further, if one of ordinary skill in the art were to have modified Nasir's fluorescence polarization assay to instead detect *Salmonella* antigens, he or she would have used a fluorescently labeled antibody in place of Nasir's fluorescently labeled antigen. This is because Bolz taught the use of a labeled antibody to detect sample antigen, as noted above.

Thus, Applicants respectfully submit that one of ordinary skill confronted with the task of detecting *Salmonella* antigens in a sample would not have arrived at the method of claim 1.

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<sup>1</sup> This distinction is also reflected in Bolz's claims. Claims 1 and 23, which are directed to quantitation of antigen in a liquid sample, recite a labelled antibody. Claims 12 and 26, which are directed to quantitation of antibody in a liquid sample, recite a labelled antigen.

Instead, the person of ordinary skill in the art would have used a fluorescently labeled **antibody**, rather than the fluorescently labeled **antigen** (tracer) recited in claim 1, based on Bolz's teaching of using a labeled **antibody** to detect sample **antigen**. In this way, Bolz teaches away from the subject matter of claim 1.

Accordingly, Applicants submit that claim 1 is allowable over Bolz in view of Nasir for at least the foregoing reasons. Applicants further submit that claims 2-4 and 19 are allowable for at least the reason that these claims depend on an allowable claim.

### 3. **Response to rejections of claim 5**

Claim 5 is dependent on claim 1. The Examiner has rejected claim 5 under § 103 as being allegedly unpatentable over Bolz and Nasir in further view of Gast. As an initial matter, Applicants submit that claim 5 is nonobvious for at least the same reasons that claim 1 is nonobvious. *See* MPEP § 2143.03. In addition, Applicants respectfully submit that the Examiner has misread Gast, as set forth below.

In rejecting claim 5, the Examiner argued that Gast "teaches that fluorescence polarization is an effective and accurate method to detect *Salmonella* in animal (hen) feces." *See* Office Action, p. 6. In fact, Gast contains no such teaching because the fecal samples in Gast were not tested using fluorescence polarization. The "Materials and Methods" section (Gast, p. 138) makes clear that *Salmonella* was detected in the fecal samples by ***culturing*** the fecal samples, not by fluorescence polarization. Moreover, fluorescence polarization was used in Gast only to detect **antibodies** in serum samples. *See* Gast, p. 137 ("Summary") and p. 139 ("Detection of specific antibodies by FP"). In contrast, claim 1 is directed to a method of detecting *Salmonella* **antigens** in a sample by fluorescence polarization.

Accordingly, Applicants submit that claim 5 is allowable over the Bolz/Nasir/Gast combination because claim 5 is dependent on an allowable claim and for the additional reason that Gast does not teach using fluorescence polarization to detect *Samonella* antigens in a fecal sample.

**4. Response to rejections of claims 6-8**

Of these claims, claims 6 depends directly from claim 1, and claims 7 and 8 are dependent on claim 6. The Examiner has rejected claims 6-8 under § 103 as being allegedly unpatentable over Bolz and Nasir. As an initial matter, Applicants submit that claims 6-8 are nonobvious for at least the same reasons that claim 1 is nonobvious. *See* MPEP § 2143.03. In addition, Applicants respectfully submit that the Examiner has misread Nasir in rejecting claims 6-8, as set forth below.

Claims 6-8 recite additional elements relating to fluorescence polarization. Because (as the Examiner has recognized) Bolz does not teach the use of fluorescence polarization, the Examiner has cited to Nasir for these additional elements. In particular, the Examiner has cited to Nasir as allegedly teaching “wherein combining said sample with a tracer and an anti-*Salmonella* antibody to form an assay mixture comprises combining said sample with anti-*Salmonella* antibody to provide a blank mixture and combining said blank with said tracer to provide said assay mixture” (recited in claim 6), and as allegedly teaching the elements recited in claims 7 and 8. The Examiner’s stated rationale for this is “because these claim limitations are necessarily taught by using fluorescence polarization.” *See* Office Action, p. 5.

Applicants respectfully submit that the Examiner’s rationale is based on a misreading of Nasir, in that Nasir does not teach combining a sample with an anti-*Salmonella* antibody at all. As summarized in Nasir’s Abstract, the fluorescence polarization assay method involves

combining the sample with a **buffer** ("Sample ... was diluted into 1 ml of buffer and a blank serum reading was taken.") and with a **tracer** ("10 ml of an appropriately diluted tracer [was] added, mixed and its FP measured after 2 minutes."), not with an anti-*Salmonella* **antibody**. Thus, Nasir itself rebuts the Examiner's argument that the additional claim limitations are necessarily taught by using fluorescence polarization.

Accordingly, Applicants submit that claims 6-8 are allowable over the Bolz/Nasir combination because they are dependent on an allowable claim and for the additional reason that Nasir does not teach combining the sample with an anti-*Salmonella* antibody in a fluorescence polarization assay.

## 5. **Conclusion**

Applicants submit that the present application is in condition for allowance, and notice to that effect is hereby requested. Should the Examiner feel that further dialog would advance the subject application to issuance, the Examiner is invited to telephone the undersigned at any time at (312) 913-0001.

Respectfully submitted,

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